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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,648	09/22/2003	Walter H. Christiansen	US.03.036	1123

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EXAMINER

FEELY, MICHAEL J

ART UNIT PAPER NUMBER

1712

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,648

Applicant(s)

CHRISTIANSEN ET AL.

Examiner

Michael J. Feely

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-18 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0903.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasuda et al. (US Pat. No. 5,081,206).

Regarding claims 1-18, Yasuda et al. disclose: *(1)* a process for preparing a resin coated article, the process comprising contacting a substrate with an accelerated resin composition (Abstract; column 8, lines 3-9; column 6, lines 6-11) comprising an epoxy resin (column 6, lines 12-59), a curing agent (column 6, lines 59-60; column 7, lines 11-14), and an alkali metal containing cure accelerator compound (column 7, lines 23-33);

(2) wherein the accelerated resin composition further comprises one or more solvents (column 7, lines 15-22);

(3) wherein the accelerated resin composition is in powder, hot melt, solution, or dispersion form (Abstract; column 7, lines 15-22);

(4) wherein the contacting method is selected from the group consisting of powder coating, spray coating, die coating, roll coating, resin infusion and contacting the substrate with a bath comprising the accelerated resin composition (column 8, lines 3-9; column 6, lines 6-11);

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(5) wherein the substrate comprises a material selected from the group consisting of glass, fiberglass, quartz, paper, thermoplastic resin, an unwoven aramid reinforcement, carbon, graphite, ceramic, metal and combinations thereof (column 8, lines 3-9; column 6, lines 6-11);

(6) wherein the article is a prepreg, wherein the substrate comprises a material selected from the group consisting of glass, fiberglass, quartz, paper, thermoplastic resin, an unwoven aramid reinforcement, carbon, graphite, ceramic, metal and combinations thereof, and wherein the contacting occurs in a bath comprising the accelerated resin composition and optionally one or more solvents (column 8, lines 3-9; column 6, lines 6-11); (7) wherein the substrate is glass or fiberglass in the form of a woven cloth or a mat (column 8, lines 3-9; column 6, lines 6-11);

(8) wherein the alkali metal containing cure accelerator compound is selected from the group consisting of an alkali metal containing hydroxide, alkoxide, carboxylate, halide salt, borate, bicarbonate, carbonate, chlorate, nitrate, phosphate, sulfate, sulfide, sulfite, polysulfide, thiocyanate, silicate, aluminate, phosphonate, sulfonate, cyanate, thiolate, thiophenoxide, thiocarboxylate, thiophosphate, imide salt, an alkali metal ion complexed with coordinating compounds, and combinations thereof (column 7, lines 23-33);

(9) wherein the alkali metal containing cure accelerator compound is selected from the group consisting of an alkali metal containing hydroxide, alkoxide, phenoxide, carboxylate, halide salt, carbonate and combinations thereof (column 7, lines 23-33);

(10) wherein the alkali metal containing compound is represented by the formula MOR or $(MO)_n-R$ wherein M is a metal selected from Group 1 of the periodic table of elements, O is oxygen, and R is hydrogen or a substituted or unsubstituted hydrocarbyl group (column 7, lines 23-33); (11) wherein M is lithium, sodium or potassium, and R is hydrogen or a C_1 to C_{40}

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hydrocarbonyl group (column 7, lines 23-33); *(12)* wherein OR represents a hydroxy, a methoxy, an ethoxy, an n-propoxy, an isopropoxy, an n-butoxy, an iso-butoxy, a sec-butoxy, a tert-butoxy, or a phenoxy group (column 7, lines 23-33); *(13)* wherein the alkali metal containing compound is selected from the group consisting of lithium hydroxide, sodium hydroxide, potassium hydroxide, sodium methoxide, potassium methoxide, lithium methoxide and combinations thereof (column 7, lines 23-33);

(14) wherein the alkali metal containing cure accelerator compound is utilized in an amount greater than 0.00001 molar equivalents per 100 grams of epoxy resin solids (column 7, lines 23-33);

(15) wherein the epoxy resin is derived from the reaction of an epihalohydrin and a phenol or a phenol type compound (column 6, lines 17-59); *(16)* wherein the phenol or a phenol type compound is selected from the group consisting of bisphenols, halogenated bisphenols, hydrogenated bisphenols, novolac resins, polyalkylene glycols and combinations thereof (column 7, lines 23-33);

(17) a resin coated article prepared by the process of claim 1 (Abstract; column 8, lines 3-9; column 6, lines 6-11); and

(18) a prepreg prepared by the process of claim 1 (Abstract; column 8, lines 3-9; column 6, lines 6-11).

3. Claims 1 and 3-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Corley (US Pat. No. 4,503,200).

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Regarding claims 1-18, Corley discloses: *(1)* a process for preparing a resin coated article, the process comprising contacting a substrate with an accelerated resin composition (Abstract; column 7, line 66 through column 8, line 9) comprising an epoxy resin (Abstract; column 2, line 45 through column 4, line 2), a curing agent (Abstract; column 5, lines 15-52), and an alkali metal containing cure accelerator compound (Abstract; column 6, line 64 through column 7, line 4);

(3) wherein the accelerated resin composition is in powder, hot melt, solution, or dispersion form (Abstract; column 7, line 66 through column 8, line 9);

(4) wherein the contacting method is selected from the group consisting of powder coating, spray coating, die coating, roll coating, resin infusion and contacting the substrate with a bath comprising the accelerated resin composition (Abstract; column 7, line 66 through column 8, line 9);

(5) wherein the substrate comprises a material selected from the group consisting of glass, fiberglass, quartz, paper, thermoplastic resin, an unwoven aramid reinforcement, carbon, graphite, ceramic, metal and combinations thereof (Abstract; column 7, line 66 through column 8, line 9);

(6) wherein the article is a prepreg, wherein the substrate comprises a material selected from the group consisting of glass, fiberglass, quartz, paper, thermoplastic resin, an unwoven aramid reinforcement, carbon, graphite, ceramic, metal and combinations thereof, and wherein the contacting occurs in a bath comprising the accelerated resin composition and optionally one or more solvents (Abstract; column 7, line 66 through column 8, line 9); *(7)* wherein the

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substrate is glass or fiberglass in the form of a woven cloth or a mat (Abstract; column 7, line 66 through column 8, line 9);

(8) wherein the alkali metal containing cure accelerator compound is selected from the group consisting of an alkali metal containing hydroxide, alkoxide, carboxylate, halide salt, borate, bicarbonate, carbonate, chlorate, nitrate, phosphate, sulfate, sulfide, sulfite, polysulfide, thiocyanate, silicate, aluminate, phosphonate, sulfonate, cyanate, thiolate, thiophenoxide, thiocarboxylate, thiophosphate, imide salt, an alkali metal ion complexed with coordinating compounds, and combinations thereof (Abstract; column 6, line 64 through column 7, line 4);

(9) wherein the alkali metal containing cure accelerator compound is selected from the group consisting of an alkali metal containing hydroxide, alkoxide, phenoxide, carboxylate, halide salt, carbonate and combinations thereof (Abstract; column 6, line 64 through column 7, line 4);

(10) wherein the alkali metal containing compound is represented by the formula MOR or $(MO)_n-R$ wherein M is a metal selected from Group 1 of the periodic table of elements, O is oxygen, and R is hydrogen or a substituted or unsubstituted hydrocarbyl group (Abstract; column 6, line 64 through column 7, line 4); (11) wherein M is lithium, sodium or potassium, and R is hydrogen or a C_1 to C_{40} hydrocarbyl group (Abstract; column 6, line 64 through column 7, line 4); (12) wherein OR represents a hydroxy, a methoxy, an ethoxy, an n-propoxy, an isopropoxy, an n-butoxy, an iso-butoxy, a sec-butoxy, a tert-butoxy, or a phenoxy group (Abstract; column 6, line 64 through column 7, line 4); (13) wherein the alkali metal containing compound is selected from the group consisting of lithium hydroxide, sodium hydroxide, potassium hydroxide, sodium

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methoxide, potassium methoxide, lithium methoxide and combinations thereof (Abstract; column 6, line 64 through column 7, line 4);

(14) wherein the alkali metal containing cure accelerator compound is utilized in a amount greater than 0.00001 molar equivalents per 100 grams of epoxy resin solids (Abstract; column 6, line 64 through column 7, line 4);

(15) wherein the epoxy resin is derived from the reaction of an epihalohydrin and a phenol or a phenol type compound (Abstract; column 2, line 45 through column 4, line 2); (16) wherein the phenol or a phenol type compound is selected from the group consisting of bisphenols, halogenated bisphenols, hydrogenated bisphenols, novolac resins, polyalkylene glycols and combinations thereof (Abstract; column 2, line 45 through column 4, line 2);

(17) a resin coated article prepared by the process of claim 1 (Abstract; column 7, line 66 through column 8, line 9); and

(18) a prepreg prepared by the process of claim 1 (Abstract; column 7, line 66 through column 8, line 9).

4. Claims 1 and 3-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Allen (US Pat. No. 4,554,341).

Regarding claims 1-18, Corley discloses: (I) a process for preparing a resin coated article, the process comprising contacting a substrate with an accelerated resin composition (Abstract; column 7, lines 35-55) comprising an epoxy resin (Abstract; column 2, line 43 through column 4, line 9), a curing agent (Abstract; column 4, line 26 through column 5, line 2), and an alkali metal containing cure accelerator compound (Abstract; column 6, lines 43-50);

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(3) wherein the accelerated resin composition is in powder, hot melt, solution, or dispersion form (Abstract; column 7, lines 35-55);

(4) wherein the contacting method is selected from the group consisting of powder coating, spray coating, die coating, roll coating, resin infusion and contacting the substrate with a bath comprising the accelerated resin composition (Abstract; column 7, lines 35-55);

(5) wherein the substrate comprises a material selected from the group consisting of glass, fiberglass, quartz, paper, thermoplastic resin, an unwoven aramid reinforcement, carbon, graphite, ceramic, metal and combinations thereof (Abstract; column 7, lines 35-55);

(6) wherein the article is a prepreg, wherein the substrate comprises a material selected from the group consisting of glass, fiberglass, quartz, paper, thermoplastic resin, an unwoven aramid reinforcement, carbon, graphite, ceramic, metal and combinations thereof, and wherein the contacting occurs in a bath comprising the accelerated resin composition and optionally one or more solvents (Abstract; column 7, lines 35-55); (7) wherein the substrate is glass or fiberglass in the form of a woven cloth or a mat (Abstract; column 7, lines 35-55);

(8) wherein the alkali metal containing cure accelerator compound is selected from the group consisting of an alkali metal containing hydroxide, alkoxide, carboxylate, halide salt, borate, bicarbonate, carbonate, chlorate, nitrate, phosphate, sulfate, sulfide, sulfite, polysulfide, thiocyanate, silicate, aluminate, phosphonate, sulfonate, cyanate, thiolate, thiophenoxide, thiocarboxylate, thiophosphate, imide salt, an alkali metal ion complexed with coordinating compounds, and combinations thereof (Abstract; column 6, lines 43-50);

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(9) wherein the alkali metal containing cure accelerator compound is selected from the group consisting of an alkali metal containing hydroxide, alkoxide, phenoxide, carboxylate, halide salt, carbonate and combinations thereof (Abstract; column 6, lines 43-50);

(10) wherein the alkali metal containing compound is represented by the formula MOR or $(MO)_n-R$ wherein M is a metal selected from Group 1 of the periodic table of elements, O is oxygen, and R is hydrogen or a substituted or unsubstituted hydrocarbyl group (Abstract; column 6, lines 43-50); (11) wherein M is lithium, sodium or potassium, and R is hydrogen or a C_1 to C_{40} hydrocarbyl group (Abstract; column 6, lines 43-50); (12) wherein OR represents a hydroxy, a methoxy, an ethoxy, an n-propoxy, an isopropoxy, an n-butoxy, an iso-butoxy, a sec-butoxy, a tert-butoxy, or a phenoxy group (Abstract; column 6, lines 43-50); (13) wherein the alkali metal containing compound is selected from the group consisting of lithium hydroxide, sodium hydroxide, potassium hydroxide, sodium methoxide, potassium methoxide, lithium methoxide and combinations thereof (Abstract; column 6, lines 43-50);

(14) wherein the alkali metal containing cure accelerator compound is utilized in a amount greater than 0.00001 molar equivalents per 100 grams of epoxy resin solids (Abstract; column 6, lines 43-50);

(15) wherein the epoxy resin is derived from the reaction of an epihalohydrin and a phenol or a phenol type compound (Abstract; column 2, line 43 through column 4, line 9); (16) wherein the phenol or a phenol type compound is selected from the group consisting of bisphenols, halogenated bisphenols, hydrogenated bisphenols, novolac resins, polyalkylene glycols and combinations thereof (Abstract; column 2, line 43 through column 4, line 9);

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(17) a resin coated article prepared by the process of claim 1 (Abstract; column 7, lines 35-55); and

(18) a prepreg prepared by the process of claim 1 (Abstract; column 7, lines 35-55).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corley (US Pat. No. 4,503,200) or Allen (US Pat. No. 4,554,341).

Regarding claim 2, both Corley and Allen disclose the use of additional materials, including thixotropic agents (Corley: column 7, lines 62-65; Allen: column 7, lines 31-34); however, neither of the references explicitly discloses the use of solvent. One skilled in the art would recognize that any impregnation process requires adequate viscosity/flow-ability of the resin. Without proper viscosity, a desired level of impregnation cannot be achieved. One skilled in the art would also recognize that the addition of solvent is one of simplest ways of adjusting viscosity of an epoxy resin system, wherein the solvent essentially acts as a "thixotropic agent."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use solvent in the impregnation processes of Corley and Allen because both teach the use of a thixotropic agent. One skilled in the art would have recognized that the addition of

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solvent is one of simplest ways of adjusting viscosity of an epoxy resin system, wherein the solvent essentially acts as a "thixotropic agent."

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 11-13 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

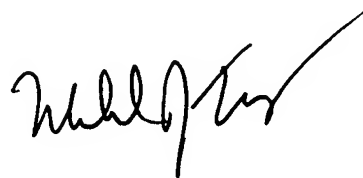
There is insufficient antecedent basis for the limitations claims 11-13. It appears that these claims should be dependent from claim 10.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael J. Feely
Primary Examiner
Art Unit 1712

May 2, 2005